# Longer Term PE Technology Needs

- **Power switches that have high voltage, high frequency, high current and power densities, with minimum or no cooling**
  - Better materials
  - Competitive cost-to-value relationship
  - Also balance of plant
- **Building Block Converter Units**
  - Easily put in series or parallel – building blocks
  - Controllability
  - Standardization and redundancy = reliability and affordability
  - Easy grid interface
- **Solid State Transformers with Added Functions/Capabilities**

# Nearer Term PE Technology Needs

- **Integrating PE with Power System Operations**
  - Getting devices working in real world environments
  - Better understanding value proposition
  - Significant reduction in costs and improvement in reliability
- **Target Applications**
  - Grid shock absorbers – R&D…3-7 years
  - Power flow management – D&C…1-3 years
- **PE Test Facility and Beta Projects**
  - Location, ownership, design, capabilities, and funding
  - Host utilities for field demonstrations